NHRA

DRAG RACING 2

Race against 30 authentic NHRA Teams

WWF Funny Car Driver
Jim Epler in the
"Big Red Machine"

EVERYONE
E
CONTENT RATED BY
ESRB

the Bone Crunchin Top Fuel and
Funny Car racing simulation

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Introduction

The National Hot Rod Association (NHRA), the world's largest motor sport sanctioning body, celebrates a continuing legacy of tradition and excellence in auto racing that is now in its sixth decade.

NHRA drag racing began on the back roads and dry lake beds of Southern California more than 50 years ago under the guidance of Wally Parks. Parks' vision and the passion of those around him took a pastime and made it a serious sport. Today, NHRA drag racing is one of the world's most popular and successful forms of motor sport.

A drag race can be simply defined as an acceleration contest from a standing start between two vehicles over a measured distance. The first vehicle across the finish line wins. The accepted standard distance for NHRA nitro classes is a quarter-mile (1,320 feet). A drag racing event is a series of such two-vehicle, tournament-style eliminations. The losing driver in each race is eliminated and the winning drivers progress until only one remains.

Two separate performances are monitored for each run: elapsed time and speed. Upon leaving the starting line each vehicle activates an elapsed-time clock which is stopped when that vehicle reaches the finish line. The start-to-finish clocking is the vehicle's elapsed time (E/T) which serves to measure performance. Speed is measured in a 60 foot "speed trap" that ends at the finish line. Each lane is timed independently.

Installing the Game

1. Start the Windows operating system.

2. Insert the NHRA Drag Racing 2 CD into your CD drive.
Note: The NHRA Drag Racing 2 Auto Launcher will automatically start unless you have turned your Windows Autorun feature off.

If you have not already installed NHRA Drag Racing 2, double-click the My Computer icon on the Desktop, then double-click the icon corresponding to your computer's CD drive (usually the D: drive). If the Setup menu does not automatically appear, double-click on Launcher.exe.

3. The NHRA Drag Racing 2 Auto Launcher will display itself. Click on INSTALL, to begin the installation process.

4. Follow the instructions as they appear on the screen.
Note: NHRA Drag Racing 2 may require additional components based on which options are chosen. If you choose not to install these options and experience problems with game play, please install these options from the ADDITIONAL APPLICATIONS menu from the NHRA Drag Racing 2 Auto Launcher Menu.

Also, if NHRA Drag Racing 2 has already been installed on your system, an option to install will not be present in the Auto Launcher Menu. If you would like to re-install NHRA Drag Racing 2, please uninstall the game first.

Uninstalling the Game

If you decide to remove NHRA Drag Racing 2 from your hard drive, do not simply delete the files. You must uninstall the game correctly to ensure complete removal. There are two ways to do this.

1. Go to Start ... Programs... Motorsims... NHRA Drag Racing 2, and select Uninstall NHRA Drag Racing 2.

or

2. Go to Start ... Settings ... Control Panel and double-click on ADD/REMOVE PROGRAMS. Click on NHRA Drag Racing 2, and click REMOVE.

Playing NHRA Drag Racing 2

Playing NHRA Drag Racing 2 requires the game to be installed first. (See instructions above). There are two possible ways to begin playing NHRA Drag Racing 2.

1. Go to Start ... Programs... Motorsims... NHRA Drag Racing 2, and select Play NHRA Drag Racing 2.

or

2. Insert the NHRA Drag Racing 2 CD into your CD drive. The Auto Launcher Menu will display itself. Click on Play NHRA Drag Racing 2

Start Options

Race Mode - Takes you to the game setup screen for skill level, event type, elimination level and track selection.

Quick Race - Automatically chooses all race settings and places you at the starting line in a Novice match race. This mode alternates between Dragster and Funny Car classes.

Load Game - Allows you to load previously saved games.

Load Replay - Load saved replays into the replay interface.

Team Info - Contains information about your NHRA opponents.

Racepak - Launches the Racepak telemetry software. (See Pg. 11 “Racepak”)

Options - Allows you to customize the level of game detail as well as set up your controller. (See "Options" Pg. 4)

Quit - Exits "NHRA Drag Racing".

Race Mode

Skill Level

Novice - "Stages" your car at the starting line for each race and is the simplest level of driving difficulty.

Arcade - Requires you to execute all phases of a Top Fuel Dragster or Funny Car race. (See "Let's Drag" Pg. 8)

Full Pass - Requires all the arcade driving skills plus the responsibilities of tuning. (For tuning techniques see "Tune Your Hot Rod - Pits" Pg. 16)

Event Type

Testing - Allows you to practice driving and tuning skills on the track of your choice. This is a great place to train to go from "Novice" to "Full Pass" racing.

Match - Lets you choose any of the professional opponents for a one-on-one match race. Some opponents may have multiple paint schemes, and can be accessed by clicking on the “More” button on your opponent. (For more information about downloadable cars visit www.nhra2.com)

Single - This mode gives you a chance to race any of the 24 NHRA events. You may choose to make up to 4 qualifying runs to achieve a higher seeding in the final elimination field of 16.

Season - This is where the "hardcore" player sets out to capture the NHRA points championship. The quest begins in Pomona and travels the entire NHRA circuit. A racing budget is awarded and tracked per event. Prize money and damage costs are added and subtracted from the budget accordingly. CAUTION: Consistently posting poor results can lead to loss of sponsorship and an early end to your race season. (See "Tips - Saving Those Dollars" - Pg. 17, for more info about extending your budget.)

Elimination

Single - One chance at advancing is all you get when you reach the elimination rounds. For an NHRA pro this is the only way that things can happen. It's the "purest"!

Double - This mode allows one "my bad" before ending your race day.

Triple - Triple elimination is for the really "faint of heart" that want three tries to advance in elimination rounds.

Options

Set Game Quality

Audio Quality - The higher setting will improve the quality of the engine sounds in the game via the “Staccato” sound engine. However, this may cause sluggish game performance on slower machines. (Visit www.staccatosys.com for info about Staccato Systems, Inc.)

Graphics Quality - There are 3 settings for the texture quality in "NHRA Drag Racing". High-resolution should only be used on machines running faster processors and graphics cards. Medium resolution is for most machines running 4MB to 8MB graphic cards. Low-resolution textures should be used on machines that meet the minimum configuration.

Resolution - Scroll in this area to choose the resolution at which your game will be displayed. The recommended resolution for most machines is 800X600. Faster machines will run at the higher settings. Machines that are closer to the minimum configuration should use 640X480.

Heads-Up Display - Highlighting these boxes turns on the heads-up display elements of the interface. Note: The default settings load all heads-up display items. This is recommended for the first-time player. (See also "Interface" Pg. 9 for details on the heads-up elements)

Animated Driver - This setting will toggle on/off the animated 3D driver. This is great to evaluate your driving performance, but will add to the initial load time of the game.

Voice Over - Enables and disables crew chief and announcer voice overs in the game.

Video - Disabling the video option turns off video clips that may appear on the "results" screen after a crash, or an event win, etc. When in racing a "season", enabling the video is recommended because NHRA stars will alert you when your sponsor is unhappy with your performance and you are in danger of "losing your ride".

Volume - This is the master volume for game sound. "Crank it up"!

Smoke - Moving this slider up and down will increase/decrease the amount of smoke your racecar puts down when crashing or smoking the tires. This is a "visual thing" and does not affect gameplay.

Environment Mapping - This setting will toggle on/off reflections on the bodies of the race cars. This looks great, but can be turned off to increase frame rate for slower machines.
Note: All higher settings may cause sluggish game performance on slower machines.

Joystick Setup

Selecting the "Joystick " button on the main "Options" screen takes you to joystick setup.

Steering Sensitivity - These sliders allow you to customize the handling of your hot rod.

Position - As you move your joystick, the position slider moves. This indicates how the joystick is responding to the settings of the "Sensitivity" and "Scale" sliders. You CANNOT drag this slider like others in the interface. It is only for visual feedback of your joystick response.

Sensitivity - This setting controls how much joystick movement is necessary to affect the steering of the car. The further to the right the slider is moved, the less play you will have in your steering. However, be aware that a more sensitive setting is less forgiving and may promote oversteering during a race. Also note that some joysticks have a degree of "noise" in the signal that is sent to the computer. A more sensitive setting may actually pick this up and cause jitter even when you are not attempting to steer your racecar.

Scale - Controls the range of motion in your joystick or how much movement is necessary to turn the car from "lock-to-lock", maximum left and right. As the slider moves to the right, the range of motion increases.

Force Feedback - Move this slider to increase or decrease the force feedback effects in the game.
Note: This slider will only have effect if you have a controller that supports force feedback.

Controls - These buttons allow you to customize the driving controls of the game. You have control over the throttle, brake, forward/reverse gear and the parachute. Select the control that you want to change and push the desired button on your joystick. Your selection will appear in the box next to the highlighted selection.
Note: 4 buttons must be available to map all of the car controls onto your joystick.

Wheel Setup

Steering Sensitivity - These sliders allow you to customize the handling of your hot rod.

Position - As you turn your wheel, the position slider moves. This indicates how your controller is responding to the settings of the "Sensitivity" and "Scale" sliders. You CANNOT drag this slider like others in the interface. It is only for visual feedback on steering wheel response.

Sensitivity - This setting controls how much wheel movement is necessary to affect the steering of the car. The further to the right the slider is moved, the less play you will have in your steering. However, be aware that a more sensitive setting is less forgiving and may promote oversteering during a race. Also note that some controllers have a degree of "noise" in the signal that is sent to the computer. A more sensitive setting may actually pick this up and cause jitter even when you are not attempting to steer your racecar.

Scale - Controls the range of motion in your steering unit or how much movement is necessary to turn the car from "lock-to-lock", maximum left and right. As the slider moves to the right, the range of motion increases.

Force Feedback - Move this slider to increase or decrease the force feedback effects in the game. Note: This slider will only have effect if you have a controller that supports force feedback.

Controls - These buttons allow you to customize the driving controls of the game. You have control over the throttle, brake, forward/reverse gear and the parachute. Select the control that you want to change and push the desired button on your steering unit. Your selection will appear in the box next to the highlighted selection. *Note:* 4 buttons must be available to map all of the car controls onto your steering controller.

Throttle Threshold - Allows you to customize the throttle control of the game much like the "Steering Sensitivity" controls. As you depress the throttle pedal on your controller, the slider on the right provides visual feedback as to the range of motion. Moving the slider on the left to a higher position will increase the range of motion, requiring the player to press down further on the pedal to achieve full throttle. The throttle in drag racing is usually off or wide open, so a large range of motion is not necessary. To maximize acceleration and reaction time, a low setting is recommended. *Note:* THIS SLIDER IS ONLY VALID FOR PLAYERS USING FOOT PEDALS TO CONTROL THE THROTTLE.

Brake Threshold - Allows you to customize the braking control of the game much like the "Steering Sensitivity" controls. As you depress the brake pedal on your controller, the slider on the right provides visual feedback as to the range of motion. Moving the slider on the left to a higher position will increase the range of motion, requiring the player to press down further on the pedal to achieve maximum braking. Dragster and Funny Car drivers actually use a hand brake. To maximize reaction time, you may want to consider a button for your brake control. *Note:* THIS SLIDER IS ONLY VALID FOR PLAYERS USING FOOT PEDALS TO CONTROL THE BRAKE.

Keyboard Controls

Gameplay:

Esc - Skip Intro Videos
Pause/Break - Pause/Resume Game
Q - Quit Game (From interface only)
I - Start/Shutdown Engine
Space Bar - Throttle
Left Arrow - Steer Left
Right Arrow - Steer Right
Shift - Brakes
Ctrl - Chutes
Tab - Forward/Reverse Gear Toggle
Enter - Toggle Opponents Camera

Camera Controls:

F1 - In-car Cam
F2 - Helicopter Cam
F3 - TV Cam
F4 - Driver Cam
F6 - Reset Camera View
F9 - F12 - Increase Camera Speed
1 - 7 - Change Camera Position

Team Setup

Racing Class

T/F Dragster - Puts you behind the wheel of a Top Fuel Dragster. Dragsters are perhaps the most recognizable racecars associated with the sport of drag racing.

T/F Funny Car - Choosing this class allows you to pilot a 6000 HP Funny Car. It provides what is arguably the "hairiest" ride in motor sports.

Sponsorship

Choose a sponsor to determine your racing colors. Funny Car racers also have a choice of body styles with different sponsors. Players racing a "Season" have to monitor a racing budget and provide good race results to make it back to Pomoma

Crew Chief

Choosing a crew chief is an important part of how your car will perform while playing the game. Note the philosophy of each in the info window. The more aggressive your crew chief, the better chance you have for a record-breaking performance. However, this could also give you a hot rod prone to smoking tires and going "boom"!

Interface

Back/Next - Buttons in the bottom corners of setup screens move you back and forward through the interface.

Camera - Text at the top of the screen lets you know which camera view you are currently seeing. Available camera positions include: In-car, helicopter, TV and driver cam.

Forward/Reverse - The upper part of your screen will show both a forward and reverse text light. This lets you know which gear you are in. The light changes as you go from forward to reverse during the starting line procedures. (See "Let's Drag!" Pg. 8 for changing gears)

Groove Indicator - After a successful burnout and coming to a complete stop, the "groove indicator" appears in the center of the screen. The two outer arrows move in and out as you enter or exit the racing groove. The center arrow shows your position in the groove. To keep your car centered in the lane, correct toward the side that the arrow is pointing. The center groove indicator should be positioned at 12 o'clock at the start of the race to achieve optimum traction. Indicator leaves the screen when the car is "pre-staged". REMEMBER: This indicator will ONLY appear after your car has come to a COMPLETE STOP.

Pre-Stage Box - The pre-stage box serves two purposes. First, it holds a number of text commands to assist you during the race. For example, the signal to begin a burnout appears in this area after your car has cleared the "water box". Second, it acts as a distance gauge to let you see the amount of track to be covered as your car eases into the pre-stage starting position. (See "Let's Drag!" Pg. 10 for pre-stage bar operation)

Traction Bar - This might be the most important interface element in "NHRA Drag Racing 2". The traction bar alerts you when your car is spinning its tires and losing traction. Any loss of traction costs time and might cost you the race. A fully green traction bar means your car has full traction. As your car begins to lose traction, the bar will start to drop. Tire smoke can also alert you to a loss of traction. This is visible from any driving position that shows the rear of the car. (See "Tips" Pg. 19 for "Backpedaling")

Win Light - A win light will come on screen any time you are the first driver to cross the finish line. This shows that you were awarded the win as long as no foul was committed. Your competitor does not receive win lights.

Let's Drag!

Anatomy of a Drag Race

At any drag race, the driver is required to go through a number of procedures to ready the car for a trip down the quarter mile. Here's a breakdown of those elements of a Top Fuel Dragster or Funny Car race.

Engine Start - After the track is cleared of any previous competitors and officials, the starter issues a start engine command. In the game, the sound bite "Ok, move it forward" signals you it's time to "light the candles".

Roll Forward - The driver releases the brake and the car idles forward through an area called the "water box." This is a portion of track behind the starting line sprayed with water to wet and prep the rear tires for the "burnout".

Burnout - This is the act of spinning the tires to clean and heat the tire surface which produces the additional traction needed to hold the track during the race. During an actual burnout, the driver depresses the throttle fully to break traction with the race surface. This produces the huge smoke cloud, a trademark of the sport. The duration of the burnout can vary from driver to driver, but may continue to the midpoint of the track. In the game your crew chief gives you a verbal signal to let you know you've cleared the water and it's time to "light'em-up"!

Reverse - After burnout the car must be stopped and put into reverse gear. The car is then backed up behind the starting line for the staging process. During the trip back to the starting line, the driver is directed by a member of the crew to steer the car into the racing groove to ensure the best traction at the start.

Pre-Stage - Pre-staging is the act of moving the car toward the starting line and illuminating the uppermost set of lights on the Christmas Tree. The front tires of the racecar actually break a light beam that spans the lane the racer is occupying. This lets the driver know that they are only a few inches away from the actual starting line.

Staging - This is the final step in preparation for the race. After pre-staging, the car is bumped forward to illuminate the last set of lights at the top of the Christmas Tree. This alerts the starter that the driver is ready to race. Both competitors must achieve this position for the race to begin. (See also "Tips" Pg. 15 for "Deep-Staging")

Amber Lights - After both sets of staging lights are lit, the starter initiates the starting sequence. The 3 amber lights in the center of the Tree illuminate to alert the driver that the race is about to begin. The period of time from a fully staged race to the amber sequence is usually 1 to 2 seconds. It's at the starter's discretion. Amber bulbs stay lit for a period of 0.40 seconds.

Green Light - It's simple, green means go! After the amber sequence, the green light at the bottom of the Tree is lit and the racer leaves the starting line. The period of time it takes for the driver to break the starting beam after the light has gone green is recorded as "reaction time". This is a big part of drag racing. Any initial advantage that can be gained by leaving the starting line quicker than your opponent is money in the bank. Note: The 0.400 duration of the amber sequence is added to the reaction time. Perfect reaction time is actually 0.400. (See "Tips" on pg. 15 for "Cutting a Light")

Red Light - Red-lighting is the "ultimate sin" in drag racing. If the starting beam is broken before the green bulb is lit, the red light on the Tree is illuminated. This is an immediate disqualification. You will actually record a reaction time that is less than 0.400 to show how much you "cheated."

Win Light - At the end of the quarter mile, an electronic beam is set like those used at the starting line. The competitor that reaches this beam first records the win light in their lane. As long as no foul has been committed during the run, the win light signals the winner of the race.

Shutdown - After the race, the driver must bring the car to a stop from speeds that are often over 300 mph. The majority of the speed produced during the race is reduced by deploying the parachute. The brake is also applied, but only after the car has slowed significantly. If the driver fails to stop the car by the end of the shutdown area, the sand trap at the end of the racetrack will bring the car to a complete stop. Drivers want to avoid this area of the track as it often provides a rough ride and the car could sustain "big time" damage.

Foul - There are several no-no's that can produce a disqualification during a race. A driver may be disqualified for leaving the starting line too soon, leaving the lane boundary by crossing the centerline or touching the guardrail, striking a track fixture such as the cones on the centerline or failing to stage. If both drivers commit fouls, the driver committing the first infraction is the loser.

Novice Racing

This is the racing procedure if you select "Novice" skill level in the "Race Mode" screen.

Engine Start - Done for you. **Pre-Stage** - Done for you. **Stage** - Done for you.

Starting the race - Once your competitor has moved into the staged position at the starting line, your car is under your control. Hit the accelerator as quickly as you can after the Tree goes green. Use your steering controls to keep the car centered in your lane. This yields the best traction and steering response.

Shutdown - As you enter the speed trap area at the end of the racetrack, your "chutes" command appears in the lower right of the screen. This is the signal to deploy your parachutes via the appropriate button on your game controller. Brake to a complete stop ONLY after the chutes have decreased a major portion of your speed.

Arcade Racing

This is the racing procedure if you select "Arcade" skill level in the "Race Mode" screen.

Engine Start - Hit the "I" key on your keyboard to start your engine. The engine will fire and the forward light is illuminated in the upper portion of your screen. This lets you know you're in forward gear.

Roll Through the Water - As the engine starts, your car will begin rolling forward. Watch for the darker area of pavement in front of you. This is the "water box." DO NOT USE THE THROTTLE TO ACCELERATE AT THIS POINT. The drag of your clutch allows you to roll forward without using the throttle. Accelerating before getting through the water box causes wild steering and may damage your engine. You may brake to go slower through the water.

Burnout - As your rear tires clear the water area, you will receive the "burnout" signal in the lower right of your screen. Press and hold the throttle on your game controller. Depending on your driving view, you will see the tires going up in smoke. A 2 to 3 second burnout is sufficient to heat the tires, but it's up to the driver. Note: If you are trying to "bring the fans to their feet" by doing a long burnout, a disqualification waits for you if your car crosses the finish line.

Stop and Reverse Gear - After completing the burnout, your car must be brought to a complete stop by using the brake button on your controller. Once stopped, the "groove indicator" and reverse commands appear on screen. Depress the forward/reverse toggle button on your controller. The reverse gear indicator will illuminate in the upper portion of your screen. As you back up, use the indicator to center your car in the groove. Backup past the starting area. Crew chief voice commands as well as text on screen will let you know where to stop. (See also "Interface" Pg. 7 for "Groove Indicator")

Forward Gear - After coming to a stop, the forward command pops up in the lower right of the screen. Press the forward/reverse toggle button on your controller to begin moving forward. Make sure the forward gear light is on in the upper portion of your screen. Again, DO NOT use the throttle to move forward, the clutch drag of your engine will allow you to move toward the starting line.

Pre-Stage - Move forward until you see the green bar begin to fill the pre-stage box in the lower right portion of the screen. This indicates the distance of your front tires from the pre-stage beam. Use your brake to slowly move the car forward until the green bar fills the pre-stage box. Once the box is filled, your pre-stage bulbs will light on the Christmas Tree. Use your brake to hold this position.

Stage - With your pre-stage light on, you are ready to move to the staged position. Pump the brake to move the last 6 inches and illuminate your staging beam. This signals the starter that you are ready to race. (See "Tips and Speed Secrets" Pg. 15 for "Deep Staging")

All NHRA drivers have certain rituals that they like to follow up to this point in a race. You will want to develop your own routine. It allows you to focus and achieve great reaction times. For example, 2 time NHRA Top Fuel Dragster Champion Gary Scelzi only likes to pump the brake once when moving from the pre-staged to staged position.

Amber then Green - Once you and your opponent have staged, the starter initiates the Tree starting sequence. The 3 amber bulbs in the center of the Tree will illuminate just prior to the green starting light. "Hammer" your throttle button as quickly as you can to begin your trip down the quarter mile before your opponent.

Fact: An NHRA nitro-class driver pulls about 3g's on the launch. (See "Tips and Speed Secrets" Pg. 15 for "Cutting a Light")

Steering - Use the steering controller to keep your car centered in your lane. This provides optimal control and traction. Remember: The shortest distance between 2 points is a straight line.

Shutdown - As you enter the speed traps, you must begin the shutdown procedure even though you may still be traveling at 300 MPH! The "Chutes" command will come on screen to signal when it's time to "hit the silk". Hit the button on your controller to deploy your parachute. You'll notice that your car slows significantly, almost immediately. A Top Fuel Dragster or Funny Car Driver may actually experience about 6g's at this point in the run. After opening the chutes, pump the brake button to bring your car to a complete stop before the sand trap at the end of the shutdown lane. Hitting the "I" key will also shut off the engine. Remember: Be careful, it's not as easy as it looks.

Full Pass Racing

"Full Pass" level is exactly the same as "Arcade" with one major exception. The "Full Pass" player does not have the benefit of a crew chief and must perform the tuning of the car. (See "Tuning Your Hot Rod" Pg. 16)

Results

After you've completed a run, the "Results" screen shows you the results of that race. This is same in all modes.

R/T - This box shows reaction time off the starting line. A good reaction time is in the 0.400's.

60 ft - Records the 60-ft. interval time. This time reflects how well the cars leave the starting line.

330 ft - These are the times at the 330 ft mark on the 1,320 ft racetrack.

1,000 ft - This is the time recorded just as the cars enter the speed trap.

E/T - "Elapsed time" for the run - places racers in the field of 16 qualifying brackets or awards lane choice during eliminations.

MPH - Reflects speeds as the cars cross the finish line.

Pits - Takes you to the tuning screen if you are in "Full Pass" mode. (See "Tuning Your Hot Rod" Pg. 12)

Next Race - Takes you to the next race in your event.

Racepak - Launches your telemetry computer software. Racepak records performance of all the major systems of your car and displays it in a graphical interface. The Racepak software is actually used by a majority of the pro teams to dial in performance. **For a complete explanation of your telemetry system go on-line to www.Moto1.net/Games/NHRA2/Racepak*

Standings - Select "Standings" to see your position in the field of 16 cars. Moving the cursor over the name of any competitor shows the E/T posted on their last run.

Points - See how the NHRA Championship points chase is shaping up. Championship points are earned in "Season" mode only. (See below for breakdown)

NHRA National Events (Points Breakdown)

Winner: **100** Runner-Up: **80** Third-round loser: **60** Second-round loser: **40** First-round loser: **20**

Additional points are awarded at National Events as follows:
10 points to all contestants - 1 qualifying run required **20** points for establishing an official E/T record

Qualifying positions earn points as follows: 1st - **8** points 2nd - **7** points 3rd - **6** points 4th - **5** points 5th and 6th - **4** points 7th and 8th - **3** points 9th thru 12th - **2** points 13th thru 16th - **1** point

Budget

Select "Budget" to see the breakdown of costs for your last run as well as prize winnings when they are awarded. Damage from crashes is assessed depending on the severity of the crash. The bar on the right shows how much money is left in your racing budget. Exhausting your budget or posting continuously poor results can end a season early. If the "Video" option is on, you will receive a warning from NHRA drivers that your sponsor is less than pleased with your performance. Following is a breakdown of costs associated with budget tracking and a prize money per event breakdown follows.

Racing Budget (Costs Breakdown)

Sponsor Budget Award: **$600,000** Ave. Cost Per Run: **$3,500** Blower: **$6,500**
Tires Rear: **$800** (pair) Tires Front: **$200** (pair) F/C Body: **$18,000**
Front Half Repair: **$3,500** Cylinder Drop Repair: **$3,000** Body Repair: **$1,000**
New Clutch: **$6,500** Clutch Repair: **$1,300**
New Funny Car: **$150,000** New Dragster: **$150,000**

Prize Money (Event Breakdown)

Event - Indy "The U.S. Nationals"

Top Fuel/Funny Car Eliminators - 16 cars - Low E/T Qualifiers
Winner: **$75,000** Runner Up: **$30,000** Semifinal: **$13,000** 2nd Round: **$11,000** 1st Round: **$8,500**

Event - Winternationals, Gatornationals, Houston, Dallas, E-Town, Chicago, Columbus, St. Louis, Denver, Reading, Topeka, NHRA Finals

Top Fuel/Funny Car Eliminators - 16 cars - Low E/T Qualifiers
Winner: **$40,000** Runner Up: **$20,000** Semifinal: **$12,500** 2nd Round: **$10,000** 1st Round: **$7,500**

Event - Phoenix, Atlanta, Richmond, Sonoma, Seattle, Brainerd, Memphis
Top Fuel/Funny Car Eliminators - 16 cars - Low E/T Qualifiers

Winner: **$30,000** Runner Up: **$15,000** Semifinal: **$11,000** 2nd Round: **$9,000** 1st Round: **$7,000**

Replay

The replay button on the "Results" screen takes you to the "Speed Zone Replay" interface. "Next" and "Previous" buttons change your camera view. VCR controls play and pauses your previous race. The "Full" button sets your replay to playback at full screen and a click on any mouse button returns you to the replay interface. Your replay angles are the TV cameras that follow your car as well as a helicopter camera that can view your car from any angle. These supplement your driving views. Camera angles can also be customized via keyboard controls. (See also "Keyboard Controls" on pg. 6)

Tuning Your Hot Rod (Pits)

Some may say that tuning a Dragster or Funny Car is the most complex task in motor sports, but NHRA crew chiefs strive to keep things simple. The challenge is to balance the massive horsepower produced by a nitro-burning engine against the clutch system to achieve the optimum combination of traction and power on the racetrack.

Tuning Screen

The tuning screen in the game has four main areas. "Weather Conditions" holds all weather readings that pertain to the run you are about to make. "Track Conditions" displays track temperature and the overall quality of the racetrack as well as an area to make a lane choice selection. (Lane choice is awarded to the competitor with the lower elapsed time in the elimination bracket.) Note: If you have a slower E/T than your opponent or are making a qualifying run, you will not be able to select your lane. Tuning sliders allow you to change clutch, engine and chassis setups for your hot rod. In the center of the screen, there are buttons for loading and saving tuning settings as well as a timer and "Race" button. The timer indicates how long you have to tune your car between rounds. Hit the "Race" button when you have finished tuning and are ready to race.

Weather and Corrected Altitude

Drag racing is no different from any other motor sport in that weather conditions and altitude play a major role in how a car performs and what the car setup should be. An NHRA crew chief takes many things into consideration when they are evaluating weather and subsequent track conditions. Below are some relationships that you should consider when tuning your hot rod in the "Full Pass" mode.

Heat and the Engine - Heat is an enemy of most racing classes as it robs the engine of horsepower, but the nitro-burning engine can overcome this due to the massive power it can produce. The hotter the race day the more horsepower you will need to add via the engine settings in the tuning interface to keep pace with the field. As a rule, a crew chief will make a number of small changes to 2 or 3 horsepower settings or a larger change to one setting to try and achieve a good balance between horsepower and the clutch system. As your race day progresses and conditions become cooler, the inverse rule applies. As things cool down you may need to decrease engine settings to avoid overpowering the track and smoking your tires.

Heat and the Track - The more sun and heat that the track is subjected to, the more slippery or "greasy" it becomes. Check out the track temperature on the tuning interface to get an idea how much traction you can expect the surface to provide. Any reading above 100 degrees indicates that the track is "going away". A slippery race surface most often requires a higher "wing attack" for dragsters and less aggressive clutch settings for both classes. The higher angle on the dragster wing provides greater downforce to add traction. Softer clutch settings also reduce the chance of smoking the tires on a "greasy" surface since they put the horsepower to the track more gradually. For a cooler racetrack, the inverse rule applies. Lower track temperatures require a lesser angle of attack on the wing and may hold more aggressive clutch setups because the amount of traction present is greater.

Corrected Altitude - NHRA crew chiefs look at all atmospheric conditions as well as racetrack altitude to make tuning choices. In the game, "Corrected Altitude" is a good number to monitor when tuning your racecar. This number is calculated from all of the variables in the weather portion of your tuning interface along with the altitude of the race venue. You are given a reading in feet, that is a great indicator as to how your hot rod will perform. As corrected altitude increases, tune your horsepower settings more aggressively. Note: At Houston Raceway Park you may have a negative number for corrected altitude as the track is near sea level versus Brandimere Speedway in Denver where you could see a "mile-high" reading.

Clutch

Primary Clutch - The "Primary Clutch" is used to control how aggressively the car leaves the starting line. These settings only pertain to about the first second of the race. Settings are measured in grams. A higher clutch weight will cause the racecar to leave the starting line harder and will yield a better 60-ft interval time if balanced properly with engine settings. However, if this setting is too high it will almost certainly cause your hot rod to smoke the tires and lose traction.

Secondary Clutch - The "Secondary Clutch" is based on an air-timer system and progressively engages during the run until "lock-up" or "1-to-1" status. The tuning interface is based on time in seconds. Shorter times in this setting yield a more aggressive setup. If this setting is correct, the green "Traction Bar" will be full the entire run. A setting that engages the secondary clutch too quickly usually causes the rear tires to lose traction sometime after the first second of the run. (See "Tips and Speed Secrets" Pg. 16 for "Tuning" hints about the clutch.)

Engine

Blower Overdrive - The supercharger, or blower, is measured by the percentage of the blower speed versus the crankshaft. Simply, a higher percentage increases pressure in the engine and makes more horsepower. Thus, a higher setting is a more aggressive tune for this part of the engine. A blower setting that is too high may cause tire smoke since too many horses will overpower the track. Even worse, it can cause the engine to go boom!

Cylinder Pressure - Increasing cylinder pressure is another way that a crew chief may ultimately increase horsepower. The cylinder pressure slider measures compression ratio which gauges the combustible area of the cylinder at the top of the power stroke.

Advance Spark - "Advancing" or "retarding" the spark is another way to hop up your engine. This setting is measured in degrees. Higher settings cause the spark to fire sooner or give more "lead." This allows the burn cycle of the cylinder more time to fire.

Nitro Content - Nitro content is measured by the percentage of nitromethane to methanol. Higher nitro content creates a more combustible fuel that causes the engine to fire hotter. This in turn increases horsepower and is a common way for an NHRA crew chief to step up or soften the engine. Remember: An engine that creates too much horsepower is prone to smoking the tires at any point during the run. (See "Tips and Speed Secrets" Pg. 16 for "Tuning" hints about the engine.)

Chassis

Top Fuel Dragsters and Funny Cars have very limited setup capabilities in this area as they have no suspension. However, there are a couple of things you can adjust to keep your hot rod glued to the racing surface.

Nose Weight - Both Dragsters and Funny Cars have a maximum allowable weight. If the car is under the weight limit, the crew chief can add or remove nose weight to prevent a wheel stand or optimize weight transfer to the rear tires at launch. Nose weight is measured in pounds. Too much weight may cause tire smoke. It may not transfer properly to the rear wheels at launch. Not enough weight may make the car prone to wheel stands. Remember: A car that does not have its front wheels on the ground has no steering.

Wing Attack - (Dragster Only) The rear wing at the back of a dragster is one of its most distinguishing features and allows the car to perform well even on a poor track. The wing angle of attack is measured in degrees. A higher setting is used when a racetrack becomes slippery due to hot weather conditions. A higher angle of attack produces more downforce and plants the car on the track. (See "Tips and Speed Secret" Pg. 16 for "Tuning" hints about these settings.)

On-Line Racing

Racing on-line via moto1.net allows you to test the skills you have honed in off-line play against the world's best computer racers. Setting up a race on-line is very much like what you do to race on your own machine. Go to www.Moto1.net/games/NHRA2 to set up your player account and begin to test your skills on the digital dragstrip.

Tips and Speed Secrets

Game Setup

Throttle - If you are using a foot pedal to control the throttle, use a low threshold setting. This will allow you to apply maximum throttle more quickly. It should also increase reaction time and help when you are required to "backpedal" your car. (See "Options" Pg. 5 for "Wheel Setup")

Steering - Use moderate to lower threshold settings for steering sensitivity. It should yield good steering feel without promoting the tendency to overcorrect when the car gets out of shape. Lower thresholds also give a more realistic drag racing sensation. (See Options Pg. 5 for "Joystick”and “Wheel Setup")

Driving

Backpedaling - The art of "backpedaling" is an essential skill for any successful Dragster or Funny Car driver. Keep an eye on the green traction bar during your run. If the green bar begins to drop, this means your car is losing traction. Be ready to lift off the throttle and then immediately reapply the power. This often clears up a tire smoking situation. You may need to do this more than once to get your car to "hook up" to the racetrack.

Braking - Use the brake sparingly when your car gets out of shape. The best way to stop a car or avoid crashing is to lift off the throttle, center the car in the racetrack and then use the chute as your main source to scrub off speed. If the chute doesn't deploy, use a pumping technique on the brake, like you would on an icy road. This should provide the best control during high speed braking.

Chutes - To make sure you have plenty of time to bring your car to a stop in the shutdown area, hit the chutes as you enter the speed trap. Also, if your car is out of shape or has hit the wall, deploying the chute is a good way to stop the car and avoid damage.

Cutting a Light - The rules say that a racer may leave the starting line when the light on the Christmas Tree goes green. In truth, no racer is looking for the green light. After both cars have staged, concentrate on the amber bulbs on your side of the Tree. When these light up, it's time to "let the big dog eat". If you see green on the Tree before you mash the throttle you are late. A riskier technique is to try and anticipate the start. The Tree will go green from about 1 to 2 seconds after both cars have staged. This is a good way to gain an advantage over a quicker opponent. Keep in mind "live by the sword, die by the sword". If you guess wrong, a red light will send you home early.

Deep Staging - A good way to gain a slight starting line advantage is to "deep stage" your hot rod. Deep staging occurs when your car actually moves far enough forward from the staged position to roll out of the pre-stage beam. This will knock out the pre-stage lights in your lane. It is best to stage early when you "go in deep" to allow yourself time to get set for the start of the race. Try some "test" runs to practice deep staging.

The Groove - Traction is optimal when your car is in the center of the track, usually referred to as the "groove." Anytime you get out of the groove, your car will begin to get out of shape. Be ready and try to anticipate a loss of steering control. Keep in mind that you are not "nailed to the gun". If things are going very wrong, a professional driver lists on the throttle to get things under control rather than drive into a crash or a "DQ".

Overcorrecting - One of the most common errors a drag racer makes is overcorrecting the steering when the car strays off center. To help you avoid overcorrecting when your car gets out of shape, look at the end of the racetrack rather than directly in front of the car as you race.

Tire Shake - If your screen vibrates wildly in the first 1 to 2 seconds of a run, you are experiencing tire shake. Tire shake occurs when the engine is short on horsepower and the rear tires cannot make a smooth transition from the squatted shape at launch to the grown position at speed. You may be able to stay on the throttle and drive through this condition. However, tire shake is most often followed immediately by tire smoke as the car actually shakes off the race surface and loses traction. As the screen starts to vibrate watch your traction bar. If it starts to drop immediately, backpedal the throttle. This may reset the tires and save the run.

Wheel Stand - If your car is in a wheel stand it may just be pulling hard and correction isn't needed. However, if it begins to point to the sky, lift off the throttle and reapply power before the nose comes down. This should keep from damaging the front end. If you lift without getting back on the power you could be in for a rough ride.

Tuning

Simple Rules - Here are some simple relationships to think about when you are tuning in "Full Pass" mode.

The hotter the day, the more you'll have to increase engine settings. Heat robs the engine of horsepower.

Hot conditions also usually mean a marginal-to-slick track surface. This will require you to back off the aggressiveness of the clutch settings.

As the weather cools down, "detune" the engine. Cooler conditions will naturally have the engine making more horsepower. Running with the same tune that was used for warmer conditions almost always "overpowers the track."

A cooler race surface means more bite so you can get more aggressive with both clutch settings.

Testing - Choosing the "Testing" event type is the best and really the only way to become proficient as a crew chief. The NHRA teams rely heavily on testing data to dial in their racecars. When testing, choose settings for both clutches and tune the horsepower around them. This should allow you to develop a "baseline". Rather than changing a number of engine sliders between runs, work with a specific setting and see how it affects the run. This helps simplify the tuning process. You can test at any of the tracks in the game and save a tune to be loaded when you are setting up your car during a race. This is highly recommended for any player that hopes to capture an "NHRA Championship".

Tire Shake - The rear tires of your car will actually grow 30% in the first part of the race on a good pass. If your screen vibrates wildly during the first 1 to 2 seconds of the run, you are experiencing tire shake. Tire shake occurs when the engine is short on horsepower and the rear tires cannot make a smooth transition from the squatted shape at launch to the grown position at speed. Cooler track conditions will often be a breeding ground for tire shake as the track has more bite. Increase horsepower to get rid of "the shakes".

Tire Smoke (At the Start) - Smoking the tires in the first part of a run can be tracked to several areas in the tune. An overly aggressive "Primary Clutch" setting can definitely cause your hot rod to go "up in smoke" in the first few seconds. Reducing this setting should clear this up. Another way to avoid tire smoke at the start is to reduce the amount of horsepower your engine is making. You can achieve this by backing off one or all of your engine settings. A lower number in the "Advance Spark" slider is a good way to detune for the first part of a run. Tire smoke off the starting line can also be caused by too much "Nose Weight". Reducing this should allow the car to transfer the weight to the rear tires on launch.

Tire Smoke (Mid Track) - Tire smoke at this point in a race generally points to the Secondary Clutch. What is probably happening is that the secondary clutch is engaging too fast for track conditions. To fix this problem, increase the amount of time the clutch takes to achieve "lockup" by moving the slider higher in seconds. Note: A setting below 3.4 seconds is considered very aggressive on just about any racetrack.

Wheel Stand - A nitro-burning racecar almost always lifts the front tires at the start when it is on a strong pass. But if this becomes excessive, a wheel stand or blowover crash can occur. Increase your nose weight to tame a hot rod that wants to point skyward. Remember you can't steer a car with the front wheels in the air.

Wing Attack - (Dragster Only) If you are experiencing poor handling when racing a Dragster, check the "Wing Attack" setting. A higher angle will provide more downforce and should make the steering more responsive. Most NHRA crew chiefs use 2 degrees as the angle of attack unless the track is really hot or cool. Remember that a higher angle of attack also creates more drag and may slow the car down. 4 degrees of attack on a good race surface would be the equivalent of "dragging a piano" down the track!

Saving Those Dollars

Crashes - The severity of a crash determines how much is subtracted from your racing budget. If you hit the wall, lift off the throttle and try to get the car in the center of the lane. You save money if you can keep your car from receiving further damage.

Elimination Level - Even though setting the "Elimination Level" on the "Race Mode" screen to "Double" or "Triple" allows you additional chances to advance in eliminations, additional runs subtract from your budget. You could potentially eat up dollars so fast that your sponsor might "park your hot rod" in a couple of races. "Single" avoids this. Your margin for winning is smaller, but this may be better for racing a full season.

Foul - Anytime you commit a foul, you are immediately disqualified and cannot win or record a good qualifying E/T. Common fouls are crossing the centerline, hitting the wall, crossing the finish after a burnout and a red light start. Don't take risks with your hot rod in these situations. Lift off the throttle to reduce the risk of damage.

Qualifying - If you are well qualified in the field on your first run, you may choose to skip a round of qualifying. You will save the $3,500 per run cost.

Tire Smoke - If your car smokes the tires during qualifying, being aggressive may lead to crashing or engine damage. If you have a good position in the field from a previous run, it might be wise to lift off the throttle.

Troubleshooting

If you experience problems and cannot find the information that you need within this manual, go online for tech support at **www.moto1.net/games/support** or **www.valusoft.com**. You can also email questions to **support@moto1.net** or **support@valusoft.com** or call **972-910-0100**.

Glossary

Backpedal: This is the act of lifting off of the throttle and reapplying the power. A driver uses this technique in an attempt to correct a tire smoking or shaking condition. The hope is the letting off and then reapplying the throttle will "reset" the tires and allow the car to regain traction.

Burned Piston: When a cylinder runs too much air in the air-to-fuel mixture, excessive heat burns the piston.

Burnout: Spinning the rear tires in water to heat and clean them prior to a run for better traction.

Christmas Tree: The Tree is the electronic starting device between lanes on the starting line. It displays a calibrated-light countdown for each driver.

Chute: Short for parachute; used to assist high-speed braking.

Clutch Can: The bell-shaped housing, or bell housing, used to encase the clutch and flywheel.

Clutch Dust: Carbon dust created when the surfaces of the clutch discs wear as they slide together during the clutch-lockup process.

Clutch Lockup: The progression of clutch-disc engagement controlled by an air-timer management system.

Deep Staged: A driver is deep staged when, after staging, he or she rolls a few inches farther and causes the pre-stage lights to go out. This is used during eliminations to gain a slight starting line advantage.

Diaper: A blanket made from ballistic and absorbent material, often Kevlar, that surrounds the oil pan and serves as a containment device during engine explosions. Required on Top Fuel Dragsters and Funny Cars.

Displacement: In an engine, displacement is the total volume of air-to-fuel mixture that an engine theoretically is capable of drawing into all cylinders during one operating cycle.

Dropped Cylinder: When a cylinder runs too rich (too much fuel in the air-to-fuel mixture) and prevents the spark plug(s) from firing.

Elapsed Time: An elapsed time, or E/T, is the time it takes a vehicle to travel from starting line to finish line.

Eliminations: After qualifying, vehicles race two at a time, resulting in one winner and one loser. Winners continue to race in tournament-style competition until one remains.

Foul Start: Is indicated by a red light on the Tree when a car has left the starting line before the green light.

Fuel Injection: A fuel-delivery system that replaces conventional carburetion. Fuel injection delivers fuel under pressure directly into the combustion chamber or indirectly through the airflow chamber.

Groove: The center of the lane that provides the optimum traction for the racecar. The groove is built up over the course of an event as hundreds of racecars travel the quarter mile.

Guard Beam: A light beam-to-photocell connection located 16 inches past the stage beam that is used to prevent a competitor from gaining an unfair starting-line advantage by blocking the stage beam with a low-installed object such as an oil pan or header-collector pipe. If the guard beam is activated while the stage beam is blocked, the red foul light is triggered on the Christmas Tree, and the offender is automatically disqualified.

Headers: Fine-tuned exhaust system that routes exhaust from the engine. Replaces exhaust manifolds.

Hemi: A Hemi engine has a hemispherical shaped cylinder-head combustion chamber, like a ball cut in half.

Holeshot: Reacting quicker to the Christmas Tree starting lights to win a race against a quicker opponent.

Hydraulic: Too much fuel fills a cylinder prohibiting compression and a mechanical malfunction results, usually an explosive one.

Interval Timers: Part of a secondary timing system that records elapsed times at 60, 330, 660, and 1,000 feet.

Lane Choice: The racer chooses in which lane of the quarter mile racetrack he or she would like to run. In elimination rounds, the choice goes to the driver with the lower E/T from either qualifying or the previous round.

Launch: Term commonly associated with the car leaving the starting line at the beginning of the race.

Methanol: Pure methyl alcohol produced by synthesis for use in Dragsters and Funny Cars.

Nitromethane: Produced specifically as a fuel for drag racing, it results from a chemical reaction between nitric acid and propane.

Overpowering the Racetrack: Term used when the engine tune is too aggressive and the car loses traction.

Pre-staged: When a driver is about 7 inches behind the starting line and the small yellow lights atop his or her side of the Christmas Tree are glowing.

Pro Tree: Type of starting sequence used in the Top Fuel Dragster and Funny Car classes. All three large amber lights on the Christmas Tree flash simultaneously, followed four-tenths of a second later by the green starting light. A perfect reaction time on a Pro Tree is .400.

Reaction Time: Time it takes a driver to react to the green starting light on the Christmas Tree, measured in thousandths of a second. Counter begins when last amber light flashes and stops when car clears the stage beam.

Rpm: Revolutions per minute, or rpm, is a measure of engine speed as determined by crankshaft spin.

Sixty-Foot Time: The time it takes a vehicle to cover the first 60 feet of the racetrack. It is the most accurate measure of the launch from the starting line, which in most cases determines how quick the rest of the run will be.

Speed Trap: The final 60 feet to the finish line where speed is recorded.

Staged: A driver is staged when the front wheels of the car are right on the starting line and the small yellow lights below the pre-stage lights on his or her side of the Christmas Tree are glowing.

Supercharger: The supercharger, or blower, is a crank-driven air-to-fuel mixture compressor. It increases atmospheric pressure in the engine, resulting in added horsepower.

Tire Shake: A major enemy of the nitro racer, it occurs when tires are actually misshapen after the car leaves the starting line. This causes the entire racecar to shake violently. Tire shake is a major cause of tire smoking.

Weight Transfer: Weight of the car transferring to rear tires at the start of a race. This is critical to traction.

Wheelie Bars: Used to prevent excessive front-wheel lift.

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